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EXAMINER

ANTHONY, JOSEPH DAVID

ART UNIT PAPER NUMBER

1714

DATE MAILED: 03/26/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/054,275

Applicant(s)

Examiner

ANTHONY, J.

Group Art Unit

1714

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 10/22/01 as pre-amendment to P.F.D.S.
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 12-24 is/are pending in the application.
- ☐ Of the above claim(s) is/are withdrawn from consideration.
- ☐ Claim(s) is/are allowed.
- ☒ Claim(s) 12-24 is/are rejected.
- ☐ Claim(s) is/are objected to.
- ☐ Claim(s) are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
 - ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachments

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 3
- ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

→ See parent case for copies of cited references.
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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 is deemed to be indefinite because many of the listed species for the paraphenylenediamine compounds are species that are outside the scope of the general formula given for the paraphenylenediamine compounds as set forth in independent claim 12. The definition of the R¹ and R² groups of the paraphenylenediamine general formula, as set forth in claim 12, does not encompass where R¹ and R² can be an aryl group such as a phenyl group. As such, paraphenylenediamine compounds of claim 14, such as N-1,3-dimethylbutyl-N'-*phenyl*-p-phenylenediamine, are not species within the definition of the general formula as set forth in independent claim 12.

3. IMPORTANT REMARKS ON APPLICANTS PENDING CLAIMS ARE MADE
HERE.

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Applicant's invention is drawn to a rubber composition comprising a rubber component and a liquid antiozonate mixture, see independent claim 12. Applicant defines the liquid mixture by way of a process of making the mixture from its reactants. Many of the dependent claims give reaction molar ratios of the reactants and the catalyst used in the reaction. Nevertheless, it must be clearly noted that the courts have constantly declared that the process in a product-by-process type claim is given little if any weight. As such, for the following prior-art rejections it does not matter if the prior-art actually discloses applicant's claimed method of making the product since applicant's claims are not drawn to a method of making. Rather the prior-art only needs to disclose or suggest a rubber composition comprising the claimed final reaction product to render applicant's claims anticipated and/or obvious. One other important fact must be pointed out and that is that nowhere in applicant's disclosure does applicant bother to reveal exactly what the reaction product is that is made by the reaction method. As such, it is not known exactly where on the paraphenylenediamine compound is the alkylation taking place (e.g. on the nitrogen atoms, on the phenyl ring etc.) The reaction seems to be a condensation type reaction but even this is left unsaid by applicant's disclosure. Since applicant has not disclosed what reaction product(s) is actually being claimed any arguments by applicant that the applied prior-art does not anticipate or render obvious applicant's claimed product will be considered moot since applicant has not disclosed what the claimed product is that is being claimed.

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Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12-24 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Budd et al. U.S. Patent Number 3,542,691.

Budd et al discloses a one step process for the preparing a liquid N-alkyl-N'-phenyl-para-phenylenediamine mixtures of N-4-methyl-2-pentyl-N'-phenyl-para-phenylenediamine (MPDA) and N-5-methyl-2-hexyl-N'-phenyl-phenylenediamine (MHDA) by reacting a mixture of 4-methyl-2-pentanone, 5-methyl-2-hexanone and at least one nitrogen containing compound which may be para-aminodiphenylamine in the presence of a Group VIII catalyst, see abstract, and column 2, lines 10-30. The taught liquid mixtures are disclosed to be useful as antiozonates for unsaturated

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polymers, see column 2 lines 32-39. Applicant's claims are deemed to be anticipated over examples 7 and 8 wherein a synthesized antiozonate composition is added to a natural rubber stock at 2.0 parts antiozonate to 100 parts natural rubber.

In the alternative, Budd et al may differ from applicant's claimed invention in that it is unclear if the patent directly teaches (i.e. by way of an example) a liquid substituted or unsubstituted paraphenylenediamine product that directly reads on applicant's claimed product since applicant's claimed product is unknown since it is not directly disclosed by applicant. As such, applicant's claimed invention is deemed to be obvious over the liquid antiozonate/antioxidant substituted or unsubstituted paraphenylenediamine products produced by the process disclosed by the said individual patents since applicant's product is produced by a process that is very similar to the processes taught/disclosed by said patent.

Furthermore, applicant's claim 22 might further differ from the patent's taught (i.e. by way of an example) liquid substituted or unsubstituted paraphenylenediamine products in that none of the patents' examples seem to use platinum sulfide as the specific catalyst species. It would have been obvious to one having ordinary skill in the art to use platinum sulfide as the catalyst species since such catalysts are deemed to come with the broad disclosure of the applied patents to Group VIII catalyst which are useful for their inventions. Applicant's specification also has no showing of any superior or unexpected results that may arise from the use of platinum sulfide as the catalyst species.

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Finally, while there is no direct teaching (i.e. by way of an example) to making an antiozonate containing rubber composition in the form of a product claimed in applicant's claim 24, such as a tire, such a use is deemed to be at once envisaged by one having ordinary skill in the art. Furthermore, tire sidewalls are suggested by the patent as use for such antiozonate containing rubber compositions, see column 1, lines 32-36.

7. Claims 12-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Merten et al. U.S. Patent Number 4,900,868 or Merten et al. EP 0 084 527 or D'Sidocky et al. U.S. Patent Number 4,463,191 or Symon U.S. Patent Number 4,304,939.

The U.S. and EP Merten et al patents both teach a process for the producing liquid N,N'-disubstituted paraphenylene diamine mixtures by sequential reductive alkylation with a plurality of ketones in sequence using a Group VIII catalyst such as platinum containing catalyst, see column 2, line 67 to column 3, line 6. The ketones can be acetone and/or other ketones that encompass applicant's ketones of claim 3, see column 1, line 58 to column 2, line 52 of '868. The products produced by the patents' disclosed process are disclosed to be useful as antiozonates for diene rubber and can be included in such rubbers at a concentration from 0.5 to 5 parts by weight per 100 parts by weight of the rubber, see column 6, lines 42-53 of '868 and the examples.

D'Sidocky et al discloses a one stage process for the reductive alkylation of aromatic nitro-containing compounds with ketones or aldehydes using a Group VIII catalyst such as palladium complex to produce compounds such as N-phenyl-N'-alkyl-p-phenylenediamine, see

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the abstract. The disclosed ketones and aldehydes encompass applicant's claimed ketones and aldehydes. The taught product is useful as an antiozonate for rubbers, see column 10, lines 16-24 and example 7.

Symon discloses preparation of N-phenyl-N-alkylphenylenediamine by reductive alkylation of a nitrogen-containing diphenylamine and a ketone in the presence of a Group VIII catalyst, such as platinum catalyst, see the abstract, the ketones can be acetone and other ketones that encompass applicant's claimed ketones. The taught N-phenyl-N-alkylphenylenediamine product is useful as an antioxidants for rubbers, see column 2, lines 66-68, and the Examples.

The U.S. and EP Merten et al, D'Sidocky et al, and Symon patents differ from applicant's claimed invention in that there is no direct teaching (i.e. by way of an example) to where the produced antiozonate compositions are actually added to a rubber. It would have been obvious to one having ordinary skill in the art to actually add the produced antiozonate/antioxidant compositions to a rubber since such an addition is directly suggested by the broad disclosure of all said patents.

The patents may also differ from applicant's claimed invention in that it is unclear if these said patents directly teach (i.e. by way of an example) a liquid substituted or unsubstituted paraphenylenediamine product that directly reads on applicant's claimed product since applicant's claimed product is unknown since it is not directly disclosed by applicant. As such, applicant's claimed invention is deemed to be obvious over the liquid antiozonate/antioxidant substituted or unsubstituted paraphenylenediamine products produced by the process disclosed by the said

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individual patents since applicant's product is produced by a process that is very similar to the processes taught/disclosed by said patents.

Furthermore, applicant's claim 22 might further differ from the patents' taught (i.e. by way of an example) liquid substituted or unsubstituted paraphenylenediamine products in that none of the patents' examples seem to use platinum sulfide as the specific catalyst species. It would have been obvious to one having ordinary skill in the art to use platinum sulfide as the catalyst species since such catalysts are deemed to come with the broad disclosure of the applied patents to Group VIII catalyst which are useful for their inventions. Applicant's specification also has no showing of any superior or unexpected results that may arise from the use of platinum sulfide as the catalyst species.

Finally, while there is no direct teaching (i.e. by way of an example) to making an antiozonate containing rubber composition in the form of a product claimed in applicant's claim 24, such as a tire, such a use is deemed to be at once envisaged by one having ordinary skill in the art. Furthermore, tire sidewalls are suggested by both the U.S. and EP Merten et al patents as a use for such antiozonate containing rubber compositions, see column 6, lines 42-48.

8. Claims 12-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horst U.S. Patent Number 1,906,935.

Horst discloses the production of antioxidants for rubbers and their use thereof. The process comprises performing a condensation reaction by reacting an aliphatic ketone, such as

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acetone, with a secondary amino compound, such as p-amino-di-phenyleneamine, with an aldehyde, such as formaldehyde, using a catalyst, such as a Group VIII catalyst, such as zinc chloride, see the abstract, page 2, line 97 to page 3, line 49, page 4, lines 115-127, and the examples, such as example 1 wherein the produced antioxidant composition is used with a carbon black rubber stock in a truck inner tube. Horst differs from applicant's claimed invention in that there is not a direct teaching (i.e. by way of an example) to where a secondary amino compound is used as a reactant that is actually a species found within applicant's general formula for the paraphenylenediamine compounds.

It would have been obvious to one having ordinary skill in the art to use the broad disclosure of Horst as motivation to actually use a secondary amino compound species found within applicant's claimed general formula for the paraphenylenediamine compounds since such species are directly disclosed as useful reactants according to Horst's invention, see page 2, lines 5-13.

Finally, applicant's claim 22 might further differ from the patent's taught (i.e. by way of an example) paraphenylenediamine products in that none of the patents' examples seem to use platinum sulfide as the specific catalyst species. It would have been obvious to one having ordinary skill in the art to use platinum sulfide as the catalyst species since such catalysts are deemed to come with the broad disclosure of the applied patents to Group VIII catalyst which are useful for their inventions. Applicant's specification also has no showing of any superior or unexpected results that may arise from the use of platinum sulfide as the catalyst species.

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Prior-Art Cited But Not Applied

8. Any prior-art reference which is cited on FORM PTO-892 but not applied, is cited only to show the general state of the prior-art at the time of applicant's invention.

Examiner Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Joseph D. Anthony whose telephone number is (703) 308-0446. This examiner can normally be reached on Monday through Thursday from 7:35 a.m. to 6:00 p.m. in the eastern time zone. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (703) 306-2777. The group (**non-after final**) FAX machine number is (703) 872-9310. The group (**after final**) FAX machine number is (703) 872-9311. Unofficial correspondence transmitted by FAX must be marked "DRAFT". All other papers received by FAX will be treated as Official communications and cannot be immediately handled by the Examiner. Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is (703) 308-0651. The receptionist is located on the 8th floor of Crystal Plaza 3 (e.g. CP-3) and will be the welcome point for all visitors to the building.



Joseph D. Anthony
Primary Patent Examiner
Art Unit 1714

3/22/03